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PURINTON, BROOKE J	

ART UNIT	PAPER NUMBER
2881	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/562,211	BIJVOET ET AL.	
	Examiner	Art Unit	
	Brooke Purinton	2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-16,18-24 and 26-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-16,18-24 and 26-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/25/2011*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 3/25/2011 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Examiner can find support for "no second force ... at the second end of the second side" ostensibly in Figure 5, but cannot find support for a second force in the negative first direction in the drawings or in the specification.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the positive first direction" and "the negative first direction" in lines 19-22. There is insufficient antecedent basis for this limitation in the claim.

Response to Arguments

Applicant's arguments filed 2/10/2011 have been considered but are not persuasive.

In response to applicant's argument that Iwamoto doesn't teach limitation of claims 1 and 24: Iwamoto is furnished only to provide a teaching of varying in an automatic fashion, a force to counteract the magnitude of motion of a device. Applicant is reminded that the test for obviousness is not whether

the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the combined teaching of the references would have suggested automation of the apparatus of Sato to a person of ordinary skill, in order to increase efficiency and accuracy.

In regards to applicants arguments regarding Claim 16 and Claim 39: It would have been an obvious matter of design choice to adjust the clamp location, since applicant has not disclosed that the location solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the clamp on the side and facing the mask.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-6, 10-11, 14, 22-24,26-29, and 33-34 and are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshi Sato (JP 11040657A, and machine translation) in view of Iwamoto (6469773) and Kinoshita (5976260)

Regarding Claim 1, Sato teaches a lithographic apparatus (Figure 1) comprising: an illumination system configured to condition a radiation beam (Figure 1, part 2); the patterning device having a first side and a second side situated substantially opposite each other and the second side having a first end and a second end substantially opposite each other (Figure 1) a support constructed to support a patterning device (Figure 1, part 4 supports part 3), the patterning device being constructed and arranged to impart the radiation beam with a pattern in its cross-section to form a patterned radiation beam ("reticle" abstract), wherein the support is arranged to subject, at least when the support is

accelerated, the first side of the patterning device to at least one first force in a first direction normal to a second direction of the acceleration so that an acceleration of the patterning device with respect to the support is counteracted by frictional forces occurring at a contact area between the patterning device and the support (Figure 2b, vacuum part 30a,32a), wherein the support is associated with a clamping device which is arranged to subject the second side of the patterning device to at least one second force in the first direction, at least when the support is accelerated (Figure 2b, clampers 60,63,64), and to dynamically vary the at least one second force depending on a magnitude of motion of the patterning device (machine translation, paragraph 14).

Sato fails to teach wherein to dynamically vary the at least one second force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device.

Iwamoto teaches dynamically varying a force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device (3, 33-54 and 5, 35-50).

Modification would have entailed utilizing the force applying concepts of Iwamoto in the apparatus of Sato, in order to compensate for the acceleration.

It would have been an obvious modification to one of ordinary skill in the art at the time of the invention since it would have allowed improved accuracy while the stage is being accelerated or decelerated (Iwamoto, 4, 60-65). Furthermore, automatically doing this would allowed a more precise timing and compensating force application.

Sato and Iwamoto fail to teach wherein the clamping device is further configured to apply, when there is an acceleration in the second direction, the at least one second force in the positive first direction at the first end of the second side and no second force at the second end of the second side.

Sato however, does teach that each of the first end and the second end of the second side have a vacuum clamping device.

Kinoshita et al. teach wherein a wafer vacuum chucking method with two separate vacuum clamping devices are connected to two different holes for independent exhaustion (Figure 22, part 209a, 209b and Col. 25, lines 30-42).

Modification would have entailed Sato and Iwamoto's device configured to control any or all of the clamping forces separately, as taught by Kinoshita, and the obvious extension of this would be to increase the force or decrease the force as appropriate.

It would have been an obvious modification to have made since it would have allowed the operator to save on power consumption, to better control the mask support, and to better compensate for differing forces across the wafer without overclamping on one side and possibly damaging the mask.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to find the best amount of force to apply to the mask, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 205 USPQ 215.

Regarding Claim 24, Sato_et al. teach a device manufacturing method comprising: transferring a pattern from a patterning device onto a substrate wherein the method comprises supporting the patterning device using a support (Figure 1, parts 3/4); the patterning device having a first side and a second side situated substantially opposite each other and the second side having a first end and a second end substantially opposite each other (Figure 1) accelerating the support (Figure 1, part 3, direction RR); subjecting the first side of the patterning device to at least one first force in a first direction normal to a second direction of the acceleration so that an acceleration of the patterning device with respect to the support is suppressed by frictional forces occurring at a contact area between the patterning device and the support (Figure 2, pressurizing device, 70a-70c); and subjecting the second side of the patterning device to at least one second force in the first direction, at least when the support is accelerated (Figure 2, clamper 63), the at least one second force being dynamic depending on a magnitude of motion (Sato, par 14).

Sato fails to explicitly teach varying the second force in an automatic fashion (although it is likely that Sato in fact does do this procedure using the control system 8 of the apparatus, since in at least one

embodiment, that of an electron beam, the need for a vacuum pumped apparatus means that manual adjustment would be unfeasible during operation).

Sato fails to teach wherein to dynamically vary the at least one second force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device.

Iwamoto teaches dynamically varying a force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device (3, 33-54 and 5, 35-50).

Modification would have entailed utilizing the force applying concepts of Iwamoto in the apparatus of Sato, in order to compensate for the acceleration.

It would have been an obvious modification to one of ordinary skill in the art at the time of the invention since it would have allowed improved accuracy while the stage is being accelerated or decelerated (Iwamoto, 4, 60-65). Furthermore, automatically doing this would allow a more precise timing and compensating force application.

Sato and Iwamoto fail to teach wherein the clamping device is further configured to apply, when there is an acceleration in the second direction, the at least one second force in the positive first direction at the first end of the second side and no second force at the second end of the second side.

Sato however, does teach that each of the first end and the second end of the second side have a vacuum clamping device.

Kinoshita et al. teach wherein a wafer vacuum chucking method with two separate vacuum clamping devices are connected to two different holes for independent exhaustion (Figure 22, part 209a, 209b and Col. 25, lines 30-42).

Modification would have entailed Sato and Iwamoto's device configured to control any or all of the clamping forces separately, as taught by Kinoshita, and the obvious extension of this would be to increase the force or decrease the force as appropriate.

It would have been an obvious modification to have made since it would have allowed the operator to save on power consumption, to better control the mask support, and to better compensate for differing forces across the wafer without overclamping on one side and possibly damaging the mask.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to find the best amount of force to apply to the mask, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 205 USPQ 215.

Regarding Claim 28, Sato, Iwamoto and Kinoshita teach a method according to claim 24, Sato further teaches wherein the method comprises exerting the at least one force actively (Figure 3a/b, 66 motor means are actively providing force).

Regarding Claim 29, Sato, Iwamoto and Kinoshita teach a method according to claim 24, Sato further teaches wherein the method comprises exerting the at least one force passively (Figure 4, part 72).

Regarding Claims 3 and 26, Sato, Iwamoto and Kinoshita teach a lithographic apparatus/method according to claim 1/24, Sato further teaches wherein the clamping device is arranged to provide the at least one second force substantially coinciding with the at least one first force (Figure 2a/b).

Regarding Claims 4 and 27, Sato, Iwamoto and Kinoshita teach a lithographic apparatus/method according to claim 1/24, Sato further teaches wherein the clamping device is arranged to provide the at least one second force while minimizing areas of contact of which frictional forces can act between the clamping device and the patterning device when the patterning device is accelerated with respect to the clamping device (see part 63 of Figure 3a, where the pole piece touching the substrate with the least amount of contact area).

Regarding Claim 5, Sato, Iwamoto and Kinoshita teach a lithographic apparatus according to claim 1, wherein the clamping devices arranged to exert the at least one second force actively (Figure 3a, motor 66 actively puts clamping force on patterning device).

Regarding Claim 6, Sato, Iwamoto and Kinoshita teach a lithographic apparatus according to claim 1, Sato further teaches wherein the clamping device is arranged to exert the at least one second force passively (Figure 4, spring 72, passively puts clamping force on patterning device, also see paragraph [0014]).

Regarding Claims 10 and 33, Sato, Iwamoto and Kinoshita teach a lithographic apparatus/method according to claim 1/24, Sato further teaches wherein the clamping device is connected to the support (Figure 3a).

Regarding Claims 11 and 34, Sato, Iwamoto and Kinoshita teach an apparatus according to claim 10/33. Sato further teaches wherein the clamping device is arranged to dynamically exert the at least one second force when the support is being accelerated (Paragraph 14).

Regarding Claim 22, Sato, Iwamoto and Kinoshita teach a lithographic apparatus according to claim 1, Sato further teaches wherein said clamping device comprises a pivoting lever assembly (Figure 3), said lever assembly being pivotable around a pivot (part 62) that is in fixed positional relationship to said support (part 4) and comprising a lever part (part 63) contacting said patterning device so as to provide the at least one second force on said patterning device while being pivoted (Figure 3a, arm is pivoted onto patterning means to provide an additional clamping pressure), and an actuator arranged to pivot said pivoting lever assembly (part 66, motor, discussed in [0027]).

Regarding Claim 23, Sato, Iwamoto and Kinoshita teach a lithographic apparatus according to claim 1, Sato further teaches wherein said clamping device comprises a pivoting lever assembly (Figure 3), said assembly being pivotable around a pivot (Figure 3, part 62) that is in fixed positional relationship to said support (part 4) and comprising a lever part (part 63) contacting said patterning device so as to provide the at least one second force on said patterning device while being pivoted wherein the assembly comprises an inertial mass element, fixedly connected to the pivoting assembly so as to pivot the assembly during accelerations (Figure 3a, part 65).

Claims 12, 14, 15, 35, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato, Iwamoto and Kinoshita as applied to claims 1 and 24 above, and further in view of Araki et al. (20030197841).

Regarding Claims 12 and 35, Sato, Iwamoto and Kinoshita teach a lithographic apparatus/method according to claim 11/34.

Sato teaches wherein a clamping device for a mask is arranged to dynamically subject a side of the mask to at least one force ([14]).

Sato fails to explicitly state wherein the clamping device comprises at least one configured to dynamically exert by its inertia the at least one second force.

Araki et al. teach wherein the clamping device comprises at least one mass which accelerates differently with respect to an acceleration of the support, each mass thereby capable of generating/negating a force that is transmissible for exerting the at least one second force (Figure 22/23, where since the reticle 400 is not directly connected to the holder/clamp of this embodiment of Ataki et al. it would be evident that there could be slight differences in acceleration between the two parts).

Making the lithographic apparatus of Sato and Araki et al. further comprise the clamping device comprising at least one mass which accelerates differently with respect to an acceleration of the support, each mass thereby capable of generating/negating a force that is transmissible for exerting the at least one second force would solve the problem of thermal overheating.

Regarding Claims 14 and 37, Sato, Iwamoto and Kinoshita teach a lithographic apparatus/method according to claim 1/24.

Sato fails to teach wherein the clamping device is arranged to abut the support.

Ataki et al. teach wherein the clamping device is arranged to abut the support (Figure 15, where 282 a and 280 share a common boundary).

Arranging the clamping device arranged to abut the support would solve the problem of saving space.

It would have been obvious to modify the invention of Sato in the manner of Ataki et al. to have the clamping device abut the support since this would save space. Modification would yield the predictable result of having the same clamping device taking up less space.

Regarding Claims 15 and 38, Sato, Iwamoto and Kinoshita teaches the lithographic apparatus/method according to claim 1/24.

He fails to explicitly state wherein the lithographic apparatus is provided with a handler for handling the patterning device with respect to the support, wherein the handler is also arranged to handle the clamping device.

Araki et al. teach wherein the lithographic apparatus is provided with a handler for handling the patterning device with respect to the support, wherein the handler is also arranged to handle the clamping device (correction unit 550, [0204]).

Attaching a handler for handling the pattering device and the clamping device would solve the problem of how to control these pieces before, during, or after the patterning process.

It would have been obvious to one of ordinary skill in the art to utilize a way to handle both the patterning device and the clamping device through a control system or computation unit since this allows more control over the patterning process, and in the case of Ataki et al., allows quick correction for any detected reticle movement. Modification would have yielded the predictable results of allowing more control and shorter error response time.

Claims 13 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato, Iwamoto and Kinoshita as applied to claims 1 and 24 above, and further in view of Meinel et al. (USPN 4795518).

Regarding Claims 13 and 36, Sato teaches a lithographic apparatus/method according to claim 1.

He fails to explicitly state wherein the clamping device is arranged to provide additional contact area for enhancing the frictional forces needed to overcome to cause acceleration of the patterning device relative to the support when the support is accelerated.

Meinel et al. teach wherein the clamping device is arranged to provide additional contact area for enhancing the frictional forces needed to overcome to cause acceleration of the patterning device relative to the support when the support is accelerated ("the compression increases the contact area between the O ring and the package substrate," abstract).

Increasing the contact space between the lithographic apparatus and reticle would allow more frictional forces to hold the reticle and solve the problem of a sliding reticle.

It would have been obvious to use some sort of elastic O ring to modify the apparatus of Sato so that the more pressure between the reticle and the reticle holder there would have been, the more surface area would have been available to create a surface with friction to prevent the reticle from sliding during movement, since Meinel et al. do the same "to prevent lateral movement of the package substrate relative to the O ring," (abstract) analogous to the problem being solved in Sato's invention ([0003]).

Claim 30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato, Iwamoto and Kinoshita as applied to claim 24 above, and further in view of Hirayanagi (5847813).

Regarding Claim 30, Sato, Iwamoto and Kinoshita teach a lithographic apparatus according to claim 24, Sato further teaches wherein the clamping device is removable (Figure 3a).

Sato fails to explicitly teach wherein the clamping device is removable.

Hirayanagi teaches a clamping device removable (Figure 6b, "the clamps 45 can be secured to the lower portion 40b by e.g. thumbscrews or other appropriate fasteners as required" thumbscrews can be unscrewed to attach and remove the clamps).

Modification would have entailed using a pins or screws to attach the clamping device to the support in the apparatus of Sato, both of which can be removed/unscrewed and are there releasably attached.

It would have been obvious to make such a modification in order to assemble the apparatus in the first place, otherwise the parts would have fallen off. Furthermore, making this clamping device removable would have been desirable in order to swap parts, move the masks in and out easily, or clean various parts of the apparatus.

Regarding Claim 32, Sato and Iwamoto teach a lithographic apparatus according to claim 30, wherein the clamping device is passively connectable to the support (screw of Hirayanagi).

Claims 7, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato, Iwamoto and Kinoshita as applied to claims 1 above, and further in view of Hirayanagi (5847813).

Regarding Claim 7, Sato, Iwamoto and Kinoshita teach the apparatus according to claim 1.

They fail to teach wherein the clamping device is removable.

Hirayanagi teaches a clamping device releasably attached to the support (Figure 6b, "the clamps 45 can be secured to the lower portion 40b by e.g. thumbscrews or other appropriate fasteners as required" thumbscrews can be unscrewed to attach and detach the clamps).

Modification would have entailed using a pins or screws to attach the clamping device to the support in the apparatus of Sato, both of which can be removed/unscrewed and are there releasably attached.

It would have been obvious to make such a modification in order to assemble the apparatus in the first place, otherwise the parts would have fallen off.

Regarding Claims 9, Sato, Iwamoto, and Hirayanagi teach a lithographic apparatus according to claim 7, wherein the clamping device is passively connectable to the support (screw of Hirayanagi).

Claims 8 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato, Iwamoto Kinoshita and Hirayanagi/ Sato, Kinoshita and Iwamoto as applied to claims 7 and 30 above, and further in view of Meinel et al. (USPN 4795518).

Regarding Claims 8 and 31, Sato, Iwamoto, Kinoshita and Hirayanagi teach the lithographic apparatus of Claims 7 and 30.

They fail to explicitly state whether said method involves actively connecting the clamping device to the support.

Meinel teaches actively connecting two things (vacuum suction tubes as a clamping element, Figure 1a/b).

It would have been obvious to use an actively connection between the clamp and the support since active connections are known in the art (as taught by Meinel's vacuum tubes). The clamping elements comprising an active clamping means via vacuum suction tubes and would solve the problem of easily and securely attaching and detaching the clamp from the support. Substituting an active support for a passive support would have allowed more control over removal of the clamp or moving of the clamp, and would have yielded predictable results of providing stable support for the clamping device. Additionally, active support would have allowed a better backup system and perhaps more knowledge prior to failure, which

could be harder if there was a passive support (such as a screw, which could come loose without the knowledge of the technician, as opposed to a vacuum type support, upon imminent loss of which, the control system could notify the technician).

Claim 16, 18, 20-21, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Sakomoto (JP2000299370A) and Hirayanagi (5847813).

Regarding Claim 16, Sato teaches a support constructed to support a first side of a patterning device, the patterning device capable of imparting a radiation beam incident on a second side of the patterning device with a pattern in its cross-section to form a patterned radiation beam (Figure 1); wherein the support is arranged to subject, at least when the support is accelerated, the first side of the patterning device to a clamping force (Figure 2) , and wherein the support is associated with a clamping device, the clamping device is arranged to subject the second side of the patterning device (Figure 2, part 63, on either side), to an additional clamping force, at least when the support is accelerated, the first and second side of the patterning device situated substantially opposite each other (Figure 2, part 63 clamper, on either side).

Sato fails to explicitly teach wherein the clamping device is releasably attached to the support.

Sakamoto teaches a clamping device releasably attached to the support (Figure 3, part 23a) being connected to a vacuum tube ("vacuum chucked" of abstract, clear that lines of Figure 3 are vacuum lines such as those depicted in Figure 1).

Modification would have entailed using vacuum suction to attach the clamping device to the support in the apparatus of Sato.

It would have been obvious to make such a modification in order to assemble the apparatus quickly and easily.

They fail to explicitly teach that the clamp is attached to a surface which extends perpendicularly to the first side of the patterning device and faces towards the patterning device.

However, one of ordinary skill in the art would have realized that the clamps could just as well be attached to the outside edge of a mask holder, known in the art, such as that depicted in Hirayanagi (the

edge that phrase 40b's line actually ends on) as the inside surface (that part 45 is sitting on), since it would have allowed the mask itself to be made larger, taking up more space on the upper plane, while the clamps are attached to the unused portions of the side edge (i.e. the edge that is perpendicular to the first side of the patterning device).

Lastly, a person with ordinary skill in the art has good reason to pursue the known options (in this case, various placements of the clamping device) within his or her technical grasp. If this leads to the anticipated success, it is likely the product is not of innovation but of ordinary skill and common sense; see **Pfizer, Inc. v. Apotex, Inc. (480 F.3d 1348, 82 USPQ2d, 1321 (Fed. Cir. 2007))**.1

Regarding Claim 18, Sato, Sakomoto and Hirayanagi teach a support according to claim 16. Sato further teaches wherein the clamping device is connected to said support by clamping elements (thumbscrews).

Regarding Claim 20, Sato, Sakomoto and Hirayanagi teach a support according to claim 19, wherein the clamping device is shaped to be connected to said support by clamp fitting (Sato, Figure 3a, 4 has a substantially flat surface, 66 is shown to have a substantially flat bottom).

Regarding Claim 21, Sato, Sakomoto and Hirayanagi teach a support according to claim 16, Sato further teaches wherein said clamping device comprises a resilient structure for providing said additional clamping force by push pressure (Figure 4, spring 72).

Regarding Claim 39, Sato et al. teach method comprising: supporting a patterning device having a first side and a second side by the first side using a support (Figure 3a, part 4); accelerating the support (Figure 1, part RR) subjecting the first side of the patterning device to at least one first force normal to the direction of the acceleration so that an acceleration of the patterning device with respect to the support is suppressed by frictional forces occurring at a contact area between the patterning device and the support (Figure 3a); and subjecting the second side of the patterning device to at least one second force normal to the direction of the acceleration of the support, at least when the support is accelerated using the clamping device (Figure 3a).

Sato fails to explicitly teach wherein the clamping device is releasably attached to the support.

Sakamoto teaches a clamping device releasably attached to the support (Figure 3, part 23a) being connected to a vacuum tube ("vacuum chucked" of abstract, clear that lines of Figure 3 are vacuum lines such as those depicted in Figure 1).

Modification would have entailed using vacuum suction to attach the clamping device to the support in the apparatus of Sato.

It would have been obvious to make such a modification in order to assemble the apparatus quickly and easily.

They fail to explicitly teach that the clamp is attached to a surface which extends perpendicularly to the first side of the patterning device and faces towards the patterning device.

However, one of ordinary skill in the art would have realized that the clamps could just as well be attached to the outside edge of a mask holder, known in the art, such as that depicted in Hirayanagi (the edge that phrase 40b's line actually ends on) as the inside surface (that part 45 is sitting on), since it would have allowed the mask itself to be made larger, taking up more space on the upper plane, while the clamps are attached to the unused portions of the side edge (i.e. the edge that is perpendicular to the first side of the patterning device).

Lastly, a person with ordinary skill in the art has good reason to pursue the known options (in this case, various placements of the clamping device) within his or her technical grasp. If this leads to the anticipated success, it is likely the product is not of innovation but of ordinary skill and common sense; see **Pfizer, Inc. v. Apotex, Inc. (480 F.3d 1348, 82 USPQ2d, 1321 (Fed. Cir. 2007))**.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato, Sakamoto and Hirayanagi as applied to claim 16 above and further in view of Meinel et al. (USPN 4795518).

Regarding Claim 19, Sato, Sakaomot and Hirayanagi teach a support according to claim 18.

Sato teaches where the reticle actively connects to the support via vacuum suction tubes (Figure 2, 30).

He fails to explicitly state whether said clamping elements comprise vacuum suction tubes.

Meinel teaches vacuum suction tubes as a clamping element (Figure 1a/b).

It would have been obvious to use an actively connection between the clamp and the support since active connections are known in the art (as taught by Meinel's vacuum tubes). The clamping elements comprising an active clamping means via vacuum suction tubes and would solve the problem of easily and securely attaching and detaching the clamp from the support. Substituting an active support for a passive support would have allowed more control over removal of the clamp or moving of the clamp, and would have yielded predictable results of providing stable support for the clamping device. Additionally, active support would have allowed a better backup system and perhaps more knowledge prior to failure, which could be harder if there was a passive support (such as a screw, which could come loose without the knowledge of the technician, as opposed to a vacuum type support, upon imminent loss of which, the control system could notify the technician).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brooke Purinton whose telephone number is 571.270.5384. The examiner can normally be reached on Monday - Friday 7h30-5h00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571.272.2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. P./
Examiner, Art Unit 2881
Brooke Purinton
Examiner
Art Unit 2881

/ROBERT KIM/
Supervisory Patent Examiner, Art Unit 2881